

What is claimed is:

1. A method for forming a winding for a three-phase transformer, comprising:
 - winding an electrical conductor into a first plurality turns in side by side relationship to form a first layer of turns;
 - covering at least a portion of the first layer of turns with a layer of insulating material without end fill;
 - winding the electrical conductor into a second plurality turns in side by side relationship to form a second layer of turns that overlies the first layer of turns and the layer of insulation; and
 - at least one of bending the electrical conductor to form an offset in the electrical conductor at a transition in the electrical conductor between the first layer of turns and the second layer of turns, and securing the transition in the electrical conductor to at least one of the first plurality of turns, wherein the electrical conductor is one of:
 - wound into the first and second pluralities of turns over a winding leg of a core of the three-phase transformer; and
 - wound into the first and second pluralities of turns over a mandrel and subsequently installed on the winding leg.
2. The method of claim 1, wherein securing the transition in the electrical conductor to at least one of the first plurality of turns comprises adhesively bonding the transition in the electrical conductor to the at least one of the first plurality of turns.

3. The method of claim 1, wherein securing the transition in the electrical conductor to at least one of the first plurality of turns comprises tying the transition in the electrical conductor to at least one of the first plurality of turns.

4. The method of claim 1, further comprising flattening the electrical conductor.

5. The method of claim 1, wherein bending the electrical conductor to form an offset in the electrical conductor at a transition in the electrical conductor between the first layer of turns and the second layer of turns comprises bending the electrical conductor upwardly and laterally in relation to the first layer of turns so that a first of the second plurality of turns overlies a portion of the first layer of turns.

6. The method of claim 1, wherein bending the electrical conductor to form an offset in the electrical conductor at a transition in the electrical conductor between the first layer of turns and the second layer of turns comprises bending the conductor so that an end of a last of the first plurality of turns is offset from a beginning of a first of the second plurality of turns.

7. The method of claim 1, wherein covering at least a portion of the first layer of turns with a layer of insulating material without end fill comprises placing a sheet of the insulation without end fill around the first layer of turns.

8. The method of claim 1, wherein covering at least a portion of the first layer of turns with a layer of insulating material without end fill comprises covering

the at least a portion of the first layer of turns with insulating material formed from paper.

9. The method of claim 1, further comprising melting and curing adhesive on the layer of insulating material.

10. A method for forming a transformer winding for a three-phase transformer, comprising:

winding an electrical conductor into a first plurality turns in side by side relationship to form a first layer turns;
bending a first portion of the electrical conductor upwardly and laterally in relation to the first layer of turns so that a second portion of the electrical conductor immediately following the first portion of the electrical conductor overlies the first layer of turns; and

subsequently winding the electrical conductor into a second plurality turns in side by side relationship to form a second layer of turns, wherein the electrical conductor is one of:

wound into the first and second pluralities of turns over a winding leg of a core of the three-phase transformer; and
wound into the first and second pluralities of turns over a mandrel and subsequently installed on the winding leg.

11. The method of claim 10, further comprising covering the first layer of turns with an insulating material without end fill.

12. The method of claim 11, wherein covering the first layer of turns with an insulating material without end fill comprises covering the first layer of turns with a sheet of insulating material formed from paper.

13. The method of claim 11, wherein subsequently winding the electrical conductor into a second plurality turns in side by side relationship to form a second layer of turns comprises winding the electrical conductor so that the second layer of turns overlies the first layer of turns and the insulating material.

14. The method of claim 10, further comprising securing the first portion of the electrical conductor to the first layer turns.

15. The method of claim 14, wherein securing the first portion of the electrical conductor to the first layer of turns comprises at least one of adhesively bonding the first portion of the electrical conductor to the first layer of turns, and tying the first portion of the electrical conductor to the first layer of turns.

16. The method of claim 10, further comprising flattening the electrical conductor.

17. A three-phase transformer, comprising a first, a second, and a third winding leg, and a first, a second, and a third winding positioned around the respective first, second, and third winding legs, the first, second, and third windings each comprising an electrical conductor wound into a plurality of overlapping layers each formed by a plurality of adjacent turns of the electrical conductor, and an

insulating material without end fill positioned between each of the overlapping layers, wherein the electrical conductor has a transition portion formed therein between a first and a second of the overlapping layers, and the transition portion is at least one of (i) bent to form an offset in the electrical conductor, and (ii) secured to at least one of the plurality of adjacent turns.

18. The transformer of claim 17, wherein the transition portion is secured to the at least one of the plurality of adjacent turns by an adhesive joint.

19. The transformer of claim 17, wherein the transition portion is secured to the at least one of the plurality of adjacent turns by tying the transition portion to the at least one of the plurality of adjacent turns.

20. The transformer of claim 17, wherein the electrical conductor is flattened.

21. The transformer of claim 17, wherein the transition portion is bent upwardly and laterally in relation to the first of the overlapping layers so that a first of the adjacent turns in the second overlapping layer overlies a portion of the first overlapping layer.

22. The transformer of claim 17, wherein a last of the plurality of adjacent turns in the first overlapping layer is offset from a beginning of a first of the plurality of adjacent turns in the second overlapping layer.

23. The transformer of claim 17, further comprising a fourth, a fifth, and a sixth winding positioned around the respective first, second, and third winding legs.